

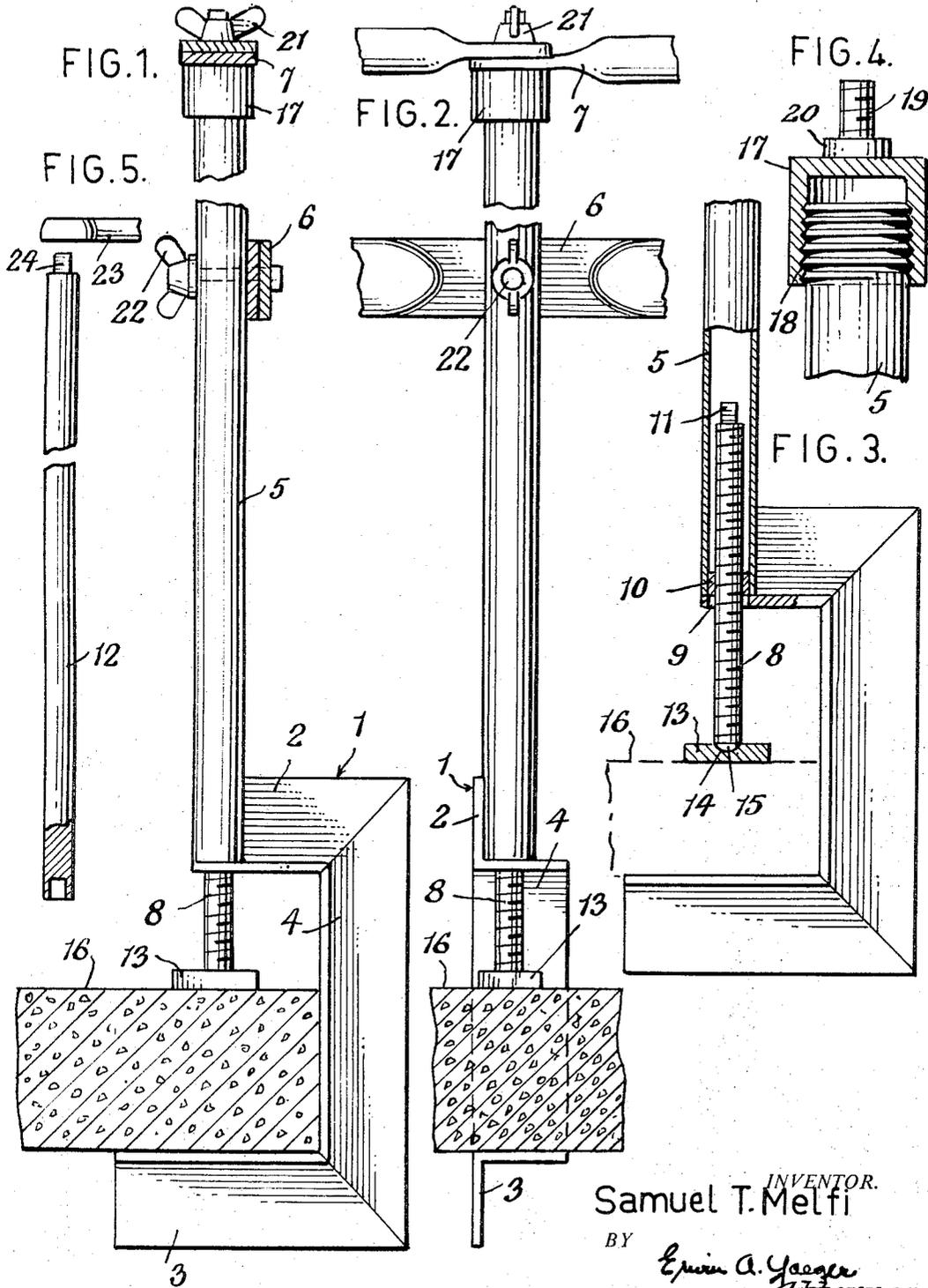
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SUPPORT OF GUARD RAILS

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SUPPORT OF GUARD RAILS
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ABSTRACT OF THE DISCLOSURE

A clamp for the support of temporary guard rails of the kind used on balconies, shaft openings, porches or the like and primarily during construction work on a building, the clamp having an upright post to which the guard rails are attached. The post is tubular and is provided at its lower end with a rigidly-attached C-clamp. The C-clamp has a clamping screw which is threadable axially into the post and has a non-round or square upper end located inside of the post and well below the upper end of the post. The adjustment of the clamping screw thus requires a long tool or socket wrench which must be inserted down into the post to engage with the square end of the clamping screw. Thereby, the adjustment of the clamping screw and hence the unauthorized removal of the clamp cannot be readily effected when a suitable tool to extend down into the post to engage the clamping screw is not available.

The present invention has reference to clamps of a type employed for the support of guard rails or similar protective enclosures and particularly to a type used on balconies, porches, etc. to protect workers during the erection of or work upon a building. It is desirable in building structures to provide temporary protective rails on porches, high balconies, steps and other places during the progress of work on a building, and it is an object of the present invention to provide a clamp which can be easily and conveniently attached along an edge of the porch, balcony or other building structure or element and by which guard rails will be supported and positioned in a way to prevent workers from falling off the structure.

It is an object of the invention to provide a device of this kind which will provide one or more guard rails at convenient heights; which can be quickly and easily installed; which can be tightened or loosened by an operator while he is in a standing position; which requires only one tool such as a ratchet wrench for its installation; which can employ standard metal guard rails instead of lumber and thus will require no nailing or splitting of lumber.

It is another object of the invention to provide a device of this character which can be easily dismantled for packing or storage and which has no laterally projecting elements likely to catch the clothing of the workers in the area of the guard rails.

It is a further object of the invention to provide a light weight device of this character, which provides greater strength and safety for the workers, and which can be quickly and easily removed, thus saving time and money for the contractor.

With these and other objects to be hereinafter set forth in view, I have devised the arrangement of parts to be described and more particularly pointed out in the claims appended hereto.

In the accompanying drawing, wherein an illustrative embodiment of the invention is disclosed,

FIG. 1 is a side elevational view of a clamp for guard rails as constructed in accordance with the invention;

FIG. 2 is a view taken at right angles to that of FIG. 1 and as viewed from the left of FIG. 1;

FIG. 3 is a view, partly in section, of a portion of the clamp, showing details of the threaded clamping rod;

FIG. 4 is a sectional view of the upper end of the tube with the closure cap fitted thereon; and

FIG. 5 shows the tool for the adjustment of the threaded clamping rod.

Referring to the drawing, 1 generally indicates the frame of the clamp. The same is preferably composed of angle bars welded together to form a substantially C-shaped member. Said frame includes an upper horizontal leg 2 and a lower horizontal leg 3, said legs being rigidly connected together by means of the vertical bar 4.

Welded to the vertical and horizontal flanges of the upper leg 2 is one end of a lengthy metal tube or sleeve 5 constituting a vertical hollow post extending upright from the top of the frame 1. Said tube 5 extends upwardly from the leg 2 for a substantial distance and to a height necessary for the support of one or more guard rails, two of which are respectively indicated at 6 and 7.

At 8 is shown a continuously threaded rod which is axially adjustable through an aperture 9 provided in one of the flanges of the upper leg 2 of the frame 1. Said rod 8 is threadably adjustable through a nut 10 which is welded or otherwise fixedly mounted in the lower end of the tube 5 as clearly seen in FIG. 3. The upper portion of the rod 8 extends upwardly within the tube 5 and at its upper end the rod is formed or otherwise provided with a non-round or square extremity 11. This enables a lengthy adjusting tool, such as shown at 12 in FIG. 5 to be inserted down through the open upper end of the tube 5 to engage the non-round end 11 of the rod 8 to turn the rod and thereby adjust it axially and threadably through the nut 10. A ratchet wrench 23 (FIG. 5) may be fitted on the upper end 24 of the tool 12 to enable the tool to be easily rotated to turn the rod 8.

At 13 is shown a clamping plate, formed with a recess or depression 14 in its upper face and which recess can receive the rounded lower end 15 of the rod 8, the pressure of which clamps the plate firmly down upon the flooring or other surface 16 of the building structure. Thus by the adjustment of the rod 8 through the nut 10, the plate 13 will be clamped down upon the upper face of the concrete flooring of a balcony, porch, steps or other structure which it is desired to protect by one or more guard rails. The flooring or other element 16 is clamped between the plate 13 and the lower leg 3 of the frame 1, and the plate 13 can be a separate element or it can be carried on and by the rod 8.

The upper end of the tube 5 may be closed by a suitable closure cap 17 which is internally threaded as shown at 18 for the threadable reception upon the external threads provided on the upper end area of the tube 5. Extending upwardly from the closed top of the cap 17 is a threaded stud 19 having a square or hexagonal base 20 on the top of the cap. A guard rail 7, perforated to be received by the stud 19, rests on the base 20 and is clamped down on the cap by means of a wing nut 21 threadably received on the stud. A second guard rail, shown at 6, may be attached to the tube or post 5 by bolts or welded on stud tightened with a wing nut or other suitable means as shown at 22.

The described device is such that it can be easily fitted in place at the edge of a porch, balcony, steps or other structure with a minimum of effort on the part of the installer. The guard rails are readily fitted on it and maximum protection is thereby provided for workmen or others on the balcony or porch. It will be understood

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that the clamps are placed at predetermined distances apart as desired to thereby receive and support guard rails of any required lengths and with advantages readily apparent to those skilled in this art.

Having thus described an embodiment of the invention, it is obvious that the same is not to be restricted thereto, but is broad enough to cover all structures coming within the scope of the annexed claims.

What I claim is:

1. A clamp for guard rails comprising, a frame in substantially C-shape, said frame including spaced horizontal legs connected by a vertical leg, the uppermost of the horizontal legs carrying an attached upwardly-directed tube having an internally-threaded portion, the tube being stationarily attached to the frame and being thus non-rotative in respect thereto, a threaded rod adjustably extending through the uppermost leg and projecting upwardly within the tube and threadably engaging the internally-threaded portion of the tube, said rod being rotatively adjustable relatively to the tube, a clamping plate engaged by one end of the rod at a point between the horizontal legs of the frame, said plate clamping a building element between it and the lowermost horizontal leg of the frame, the rod having a non-round end located within the tube and located well below the upper end of the tube for engagement by a tool required to be extended down into the tube and engaged with said non-round end and turned to threadably adjust the rod axially in respect to the tube, the non-round end of the rod being accessible for the rotative adjustment of the rod only by a tool inserted down into the tube from the upper end of the same.

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2. A clamp comprising, a frame open at one side, a tube rigidly attached to and projecting upwardly from the frame, a threaded rod entering the tube and threadable axially through the same, said rod terminating within the tube below the upper end of the same, a plate clamped by one end of the rod against a building element, the tube having means for supporting guard rails, said tube being open at one end whereby means may be inserted down into the tube to engage the rod at its upper end to adjustably rotate it independently of and relatively to the tube while the tube remains stationary, to regulate the clamping pressure of the rod upon the plate, the rod having a non-round upper end located within the tube and exposed therein for engagement by said adjusting means inserted down into the tube and engaged with said non-round end.

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